

Pre-dam removal monitoring in the Elwha River Basin: establishing baseline levels of stable isotopes in fish and benthic communities

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The removal of two dams blocking the Elwha River to migrating salmon represents an unequalled opportunity to study large scale river restoration. Salmon contribute a significant flux of marine derived nutrients, through spawning and carcass deposition, into relatively nutrient poor freshwaters. Because salmon migration has been blocked for over 90 years, the middle and upper reaches of the Elwha River have lacked this significant nutrient subsidy. As part of a larger research program designed to track the ecological effects of dam removal, we collected baseline data on marine derived nutrient levels above, between, and below the Elwha River dams from mainstem, side channel, and tributary habitats. We sampled benthic macroinvertebrates, algae, and fish tissues, which will be analyzed for stable isotope ratios of carbon and nitrogen. Documenting baseline values of stable isotopes in the years prior to dam removal will be an invaluable tool in understanding the ecological effects of salmon populations returning into the Elwha River ecosystem.